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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,648	11/10/2003	Lee D. Whetsel	TI-25741.2	6136
23494	7590	05/28/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			WHITMORE, STACY	
P O BOX 655474, M/S 3999			ART UNIT	PAPER NUMBER
DALLAS, TX 75265			2812	

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/705,648	<b>Applicant(s)</b> WHETSEL, LEE D. 	
	<b>Examiner</b> Stacy A Whitmore	<b>Art Unit</b> 2812	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 6 and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. As for claim 6, the claim language does not clearly indicate that the scan register and general purpose scan register are different as indicated in figure 6 of the drawings. Clarify.
3. Claim 11 recites the limitation "the external register present signal" in line 3. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 10 recites the limitation "the additional test input, test output, and test control signal leads" and in lines 4-6. There is insufficient antecedent basis for this limitation in the claim.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 5-6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admitted Prior Art (hereinafter referred to as AAPA).

6. As for claim 1, AAPA discloses the invention substantially as claimed, including an IP core free of any boundary scan register [fig. 1, pgs. 8-10 where AAPA discloses TAP 11 of fig. 1 to enable the operation of the IP core, examiner interprets the IP core to refer to the functional circuitry of fig. 1];

A test access port formed in the core [fig. 1, element 11]; the test access port including test port interface signal leads [fig. 1, any of the signal lines extending from element 11 read as interface signal leads; and additional test input, test output, and test control signal leads [fig. 1, elements 13, 15, and 17; pg. 3, lines 5-7; also, pg. 7, lines 17-21].

7. As for claims 3, 5-6, AAPA discloses a boundary or general purpose scan register formed on the outside of the core [fig. 1, boundary or general purpose scan register], the scan register being connected to the TAP through the additional test input, test output, and control signal leads [fig. 1, elements 13, 15, and 17].

8. As for claim 8, AAPA discloses electrical programmable circuits connected to the scan register [fig. 1, and pg. 2, lines 20-30].

9. Claim 11 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by West (US Patent 6,173,428).

10. As for claim 11, West discloses the invention as claimed, including sensing that the external register present signal is in a logical condition indicating the absence of a

user-added boundary scan register [fig. 4 and 5 - enable for user defined registers shows the sensing of presence or absence of external register present signal]; and causing all boundary scan instructions to default to a bypass instruction [col. 4, lines 20-30].

11. As for claim 13, West discloses the invention as claimed, including capturing a logical state of an external register present signal in a shift register [col. 4, lines 20-42; fig. 3, col. 5, lines 36-64; fig. 4 and 5; West shows that the TAP controller shifts in the mode selection signals including the external register enable signal "labeled as "user def. registers" in fig. 5]; shifting the contents of the shift register out of the shift register [col. 5, lines 36-64; figs. 3 and 5 show that the register contents are shifted out]; and examining the logical state of the external register present signal in the contents of the shift register shifted out of the shift register [col. 4, lines 20-42; fig. 3, col. 5, lines 36-64; fig. 4 and 5; West shows that the TAP controller shifts in the mode selection signals including the external register enable signal "labeled as "user def. registers" in fig. 5: the logical state of the external register present signal are examined in order to determine the mode of operation of the boundary scan system].

12. As for claim 14, West discloses capturing other status signals in the shift register [col. 5 and figs. 3 and 5 show different status signals that are possible to capture].

#### Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2, 4, 7, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of Handley (US Patent 5,862,152).

14. As for claims 2, 4, 7, and 9-10, AAPA discloses the invention substantially as claimed, including the integrated circuit including the IP core, boundary scan register, test access port and signal leads as cited in the rejection of claims 1 and 3 above, and additionally discloses the TAP interface signals include TDI, TCK, TMS, TRST and TDO, and serial data out, serial data input, control signal leads [pg. 7, lines 16-21, and pg. 3, lines 6-7, figs. 1 and 2].

AAPA does not specifically disclose an external (boundary scan) register present signal lead, wherein the TAP includes a capture shift update register, a decode section, connected to the external register present signal.

Handley discloses external (boundary scan) register present signal lead, wherein the TAP includes a capture shift update register, a decode section, connected to the external register present signal [fig. 2, elements 24, 30, 50, 66, INT\_EXT\_SEL signal; fig. 3, elements 82, 84, and 80].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of AAPA and Handley because Handley's additional components would have allowed for external boundary scan operations to operation in the conventional JTAG system for improved hierarchical module testing [see Handley, col. 7, lines 44-67].

15. Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA).

16. As for claim 1, AAPA discloses the invention substantially as claimed, including an IP core free of any boundary scan register [fig. 2];

A test access port formed in the core [fig. 2, element 21]; the test access port including test port interface signal leads [fig. 2, any of the signal lines extending from element 21 read as interface signal leads.

AAPA did not specifically disclose in figure 2 that the element 21 includes additional test input, test output, and test control signal lines.

AAPA discloses in page 7, lines 17-21, the conventional 1149.1 test port signal of TAP 21 (see figure 2), of TDI, TCK, TMS, TRST, TDO, and elements 13, 15, and 17 (of prior art figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize conventional IEEE standard 1149.1 signals because the 1149.1 design requires instructions used by TAP 11 (figure 1) to be able to access the IP core with conventional instructions [see pg. 7, line 27 – pg. 8, line 9].

17. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over West (US Patent 6,173,428) in view of Applicant's Admitted Prior Art (hereinafter referred to as AAPA).

18. As for claim 12, West discloses the process of executing boundary scan instructions as cited above in the rejection of claim 11.

West does not specifically disclose at least one of extest, intest, sample/preload, highz, and clamp instructions to default to the bypass instruction.

AAPA discloses at least one of extest, intest, sample/preload, highz, and clamp instructions to default to the bypass instruction [pgs. 7-9].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of West and AAPA because both West and AAPA disclose the use of the 1149.1 convention which must utilize certain boundary scan instructions to conform with the standard. Furthermore, the TAP controller of West utilizes the 1149.1 standard and therefore would have to utilize the required instructions disclosed by AAPA.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stacy A Whitmore whose telephone number is (571) 272-1685. The examiner can normally be reached on Monday-Thursday, alternate Friday 6:30am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stacy A Whitmore





Application/Control Number: 10/705,648  
Art Unit: 2812

Page 8

Primary Examiner  
Art Unit 2812

SAW